

CLAIMS

1. A process for the preparation of a metal-organic compound, comprising at least one imine ligand, characterized in that an imine ligand according to formula 1 or the HA adduct thereof, wherein HA represents an acid, of which H represents its proton and A its conjugate base, is contacted with a metal-organic reagent of formula 2 in the presence of 1, respectively 2 equivalents of a base, with

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 $Y=N-R$

as formula 1,

wherein Y is selected from a substituted carbon, nitrogen, or phosphorous atom and R represents a substituent, and with

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 $M^V(L_1)_k(L_2)_l(L_3)_m(L_4)_nX$

as formula 2,

wherein:

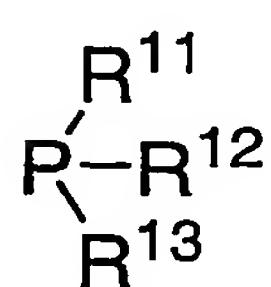
M represents a group 4 or group 5 metal ion

V represents the valency of the metal ion, being 3, 4 or 5

20 L_1, L_2, L_3 , and L_4 represent a ligand or a group 17 halogen atom on M and may be equal or different, at least one of the ligands L is chosen from cyclopentadienyl, C₁-C₂₀ hydrocarbyl (optionally containing hetero- or group 17 halogen atoms), substituted cyclopentadienyls, indenyl, C₁-C₂₀ hydrocarbyl substituted indenyls, and halogen substituted C₁-C₂₀ hydrocarbyl substituted indenyls

25 X represents a group 17-halogen atom,
 $k, l, m, n = 0, 1, 2, 3, 4$ with $k+l+m+n+1=V$.

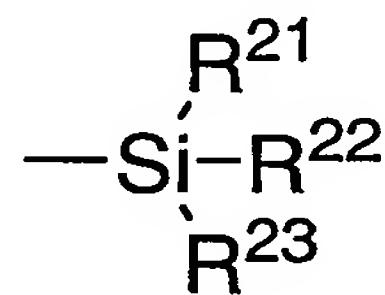
2. A process according to claim 1 wherein R represents a hydrogen atom and wherein Y is selected from the group consisting of:
30 i) a phosphorus substituent defined by the formula:



(formula 3)

wherein each R^{1j}, with j = 1-3 is independently selected from the group consisting of a hydrogen atom, a halogen atom, a C₁₋₈ alkoxy radical, a C₆₋₁₀ aryl or aryloxy radical, an amido radical, or a C₁₋₂₀ hydrocarbyl radical unsubstituted or substituted by a halogen atom, a C₁₋₈ alkoxy radical, a C₆₋₁₀ aryl or aryloxy radical, an amido radical, a silyl radical of the formula:

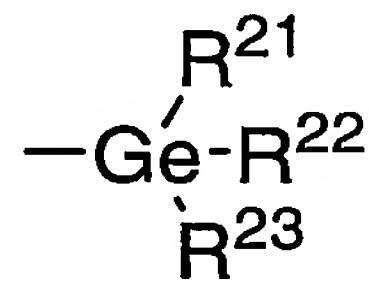
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(formula 4)

or a germanyl radical of the formula:

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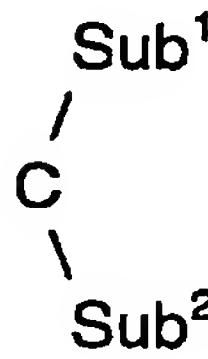
(formula 5)

wherein R^{2j} is independently selected from the group consisting of hydrogen, a C₁₋₈ alkyl or alkoxy radical, C₆₋₁₀ aryl or aryloxy radicals,

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each substituent R^{1j} or R^{2j} may be linked with another R¹ or R² to form a ring system,

ii) a substituent defined by formula 6:



(formula 6)

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wherein each of Sub¹ and Sub² is independently selected from the group consisting of hydrocarbyl radicals having from 1 to 30 carbon atoms; silyl radicals; (substituted) amido radicals and (substituted) phosphido radicals, and wherein Sub¹ and Sub² may be linked with each other to form a ring system.

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3. A process according to claim 1-2, wherein the base is a dialkylamine, a trialkylamine, a monoarylamine, diarylamine or a triarylamine.

4. A process according to claim 1-3, wherein the base is triethylamine, pyridine, tripropylamine, tributylamine, 1,4-daza-bicyclo[2.2.2]octane, pyrrolidine or piperidine.
5. A process according to claim 1-2, wherein the base is a carboxylate, a fluoride, a hydroxide, a cyanide, an amide, a carbonate of Li, Na, K, Rb, Cs, or an ammonium salt or a group 2 metal salt of Mg, Ca, or Ba thereof, an alkali metal (Li, Na, K, Rb, Cs) phosphate, or phosphate ester, or their alkoxides or phenoxides, thallium hydroxide, alkylammonium hydroxides or fluorides, or alkali metals, hydrides or carbonates of Li, Na, K, Rb, Cs or group 2 hydrides.
- 10 6. A process according to claim 5, wherein the alkali metal is chosen from Li, Na, or K.
7. A process according to claim 1-2, wherein the base is a group 1, 2, 12, 13 hydrocarbanion.
8. A process according to claim 7, wherein the base is an organomagnesium- or 15 an organolithium compound.
9. A process according to claim 1,2, 7 or 8, carried out in the presence of 3 respectively 4 equivalents of an organolithium- or an organomagnesium compound.
10. A process according to claim 1-9 wherein the reaction is carried out in an 20 aprotic solvent.
11. A process according to claim 10, wherein the solvent is the base.
12. Process for the preparation of a polyolefin by making a metal-organic compound according to the process of claims 1 – 11, wherein the base is an olefin polymerisation compatible base, which metal-organic compound is 25 activated anywhere in, or before a polymerisation reactor.
13. Process according to any of claims 12, wherein the metal-organic compound is formed used without purification.
14. Process according to claim 12 or 13, wherein the metal-organic compound is formed in the polymerisation equipment.
- 30 15. Process according to claim 14, in the presence of between 5 and 10 equivalents of the imine ligand according to formula 1.